

## **Title: Fractions, Decimals, and Percents Got You Down? “Tri” This!**

### **Brief Overview:**

Students will prepare a presentation for and write a letter to the State Department of Education persuading them to utilize their tri-fold designs in Adult Education Programs. Students will be able to construct a tri-fold explaining the relationships between fractions, decimals, and percents. Students will apply prior knowledge of fractions, decimals, and percents for use in the real-world.

### **Links to Standards:**

- **Mathematics as Problem Solving**

Students will demonstrate their ability to solve mathematical problems by developing a way to explain the connections between fractions, decimals, and percents.

- **Mathematics as Communication**

Students will demonstrate their ability to communicate mathematically by incorporating real-world applications, explanations, and connections through the use of paragraphs and diagrams.

- **Mathematics as Reasoning**

Students will demonstrate their ability to reason mathematically by researching the connections between fractions, decimals, and percents for use in paragraphs and diagrams within the context of the tri-fold. In addition to this, students will write a letter in support of their tri-fold design.

- **Mathematical Connections**

Students will demonstrate their ability to apply skills in letter writing and public speaking to convey their knowledge of mathematics, i.e., fractions, decimals, and percents.

- **Number and Number Relationships**

Students will demonstrate their ability to represent the equivalent forms of numbers, i.e., fractions, decimals, and percents.

- **Computation and Estimation**

Students will demonstrate their ability to calculate using fractions, decimals, and percents in the construction of the tri-fold. Students will justify whether their diagrams explaining the connections between fractions, decimals, and percents are sensible.

### **Grade/Level:**

Grades 6 - 7

### **Duration/Length:**

This activity should take six days including presentations of proposals. The activities may take longer than anticipated depending on class duration and students' prior knowledge.

**Prerequisite Knowledge:**

Students should have working knowledge of the following skills:

- Basic computations, including fractions, decimals, and percents
- Writing a business letter
- Working with a tri-fold

**Objectives:**

Students will:

- demonstrate a knowledge of the relationships between fractions, decimals, and percents through the construction of a tri-fold.
- make accurate calculations.
- work cooperatively in groups.
- present a tri-fold with a business letter that justifies their position.

**Materials/Resources/Printed Materials:**

- Tri-fold, or poster board if tri-folds are unavailable
- Old newspapers and magazines
- Math textbook
- Paper, pencils, glue, colored pencils and/or markers, rulers
- Calculators
- School stationary
- Statement of Problem
- Student Resource Guide
- Student Activity Sheet
- Scoring Rubric

**Development/Procedures:****Day 1:**

- Present the Problem Sheet to the class. Allow time to clarify any questions they may have.
- Organize the class into groups of four. Pass out Student Resource Guide. By the end of day 1, students should have an idea of how they will convey their message and begin the rough sketch of the tri-fold. Have students collect magazine and newspaper examples for their tri-fold as homework.

**Day 2:**

- Students will break into groups. By the end of the period, section A1 of Student Resource Guide should be completed and turned in for approval.

**Day 3:**

- Approved rough sketches should be passed back to students. After approval, students can begin working on section A2 of Student Resource Guide. Have students complete explanatory paragraphs for homework.

**Day 4:**

- Students will begin working on section B. (Teacher may want to review Student Activity Sheet before students begin.) Section B2 must receive teacher approval before beginning final construction. As groups complete section B, they may begin section C1 of Student Resource Guide. Section C1 is to be completed for homework.

**Day 5:**

- Students will work on section E of Student Resource Guide. At this time, students may also make final touches to the tri-fold. While students are working on section E, teacher should collect and review rough drafts of letters. Rough drafts should be returned with suggestions so final copies may be written for homework (section D of Student resource Guide).

**Day 6:**

- Students will present their tri-fold and letters to the class.

**Performance Assessment:**

The evaluation for this activity is based on teacher approval of sections A1, B2, and C1 of Student Resource Guide, as well as teacher discussion with group on presentation ideas. See attached Scoring Rubric for final assessment guidelines for the project.

**Extension/Follow Up:**

- As an extension activity, students may videotape their presentation to be sent, along with the letter, to the State Department of Education for consideration.
- Tri-folds can be donated to local schools and/or colleges for use in remedial classes.
- Students can create an advertisement for their tri-fold.

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### Statement of Problem

FRACTIONS, DECIMALS, AND PERCENTS GOT YOU DOWN?

“TRI” THIS!!

Attention all middle school students!!! The State Department is advertising a contest. They want you to create new and exciting ways of teaching adult education programs. Entries must be in the form of a poster, a tri-fold, or a booklet. Each entry must be accompanied by a letter in support of the design.

You and your classmates have decided to enter the contest by creating a tri-fold explaining the relationships between fractions, decimals, and percents. A tri-fold is tagboard separated into three sections to display this information. In addition to the tri-fold, you and your team members will write a letter supporting the tri-fold design.

As a group, you need to decide the best way to explain the relationships between fractions, decimals, and percents. In so doing, please remember that real-life applications must be used, as well as clear, concise language. If the person reading the information does not understand what you are trying to explain, you will not win the contest. Remember, the winner's entry will be used throughout the state.

## Student Resource Guide

The following is an outline of the steps your group needs to follow to complete the project.

### **Tri-fold Construction**

#### A. Rough Sketch Information

(all of the following must have teacher approval before construction of the tri-fold)

1. A rough sketch of the layout for the tri-fold to include placement of titles, subtitles, examples, and explanations.
2. Paragraphs that explain the relationships between fractions, decimals, and percents and their real-world applications to accompany each section of the tri-fold.
3. The tri-fold should have a border made of clippings from newspapers and magazines.

#### B. Final Product Information

1. Make any necessary corrections to the rough sketch before beginning the actual construction of the tri-fold.
2. Before the tri-fold is assembled, place the pieces on the tri-fold for teacher approval.
3. Glue all materials to the tri-fold, including paragraphs, borders, etc.

### **Letter to the State Department of Education**

#### C. Rough Draft Information

1. Write the rough draft of a business letter using the writing prompt, web, and letter form given (Student Activity Sheet). Be sure your letter addresses the writing prompt given.

Use FAT - P as follows:

Form: Business Letter

Audience: State Department of Education

Topic: Contest Regarding the Adult Education Programs

Purpose: To be Considered the Best to Win the Contest

2. Have the teacher approve the rough draft before you begin the final draft.

#### D. Final Draft Information

1. Make necessary corrections to the rough draft .
2. Complete the final draft of your letter on school stationery.
3. Choose one letter from your group to include with your tri-fold.

#### E. Presentations to the Class

1. Decided as a group how you will present your tri-fold information to the class.
2. Practice the presentation a few times before getting up in front of the class.
3. Present your information to the class.

## Student Activity Sheet

### Business Letter Form



Your Name  
Your Address  
Phone Number

State Department of Education  
Address  
Date

Dear Sir or Madam:

[illegible]

Sincerely,

Your name signed  
Your name printed

Scoring Rubric  
Fractions, Decimals, and Percents Got You Down? “Tri” This!

**Score Point 4: Winner of the Contest!!**

- Your group’s tri-fold and presentation are outstanding!! Your information will be distributed throughout the state to all Adult Education Programs.
- The business letter is well written and contains all four “think abouts” from the writing prompt.
- The person reading the information will be able to understand what the group is trying to convey without looking at any reference materials.
- A clear, concise understanding of the relationships between fractions, decimals, and percents is evident throughout all material.
- Everyone in the group works as a team player.

**Score Point 3: 2nd Place Winner**

- Your group’s tri-fold and presentation are very good!! Your information will be used in Adult Education Programs throughout your county.
- The business letter is well written and contains three “think abouts “ from the writing prompt.
- The person reading the information will be able to understand most of what the group is trying to convey without looking at any reference materials.
- A clear understanding of the relationships between fractions, decimals, and percents is evident throughout all material.
- Everyone in the group works as a team player.

**Score Point 2: 3rd Place Winner**

- Your group’s tri-fold and presentation are satisfactory.
- The business letter is written and contains two of the “think abouts” from the writing prompt.
- A person reading the information will have to look at reference materials to understand what the group is trying to convey.
- A clear understanding of the relationships between fractions, decimals, and percents is evident throughout all material.
- Everyone in the group works as a team player.

**Score Point 1: 4th Place Winner**

- Your group’s tri-fold and presentation are satisfactory.
- The business letter is written and contains one of the “think abouts” from the writing prompt.
- The person reading the information will have to look at reference materials to understand what the group is trying to convey.
- A clear understanding of the relationships between fractions, decimals, and percents is not evident throughout all material.
- Each student is not working as a team player; the group has difficulty working together.

**Score Point 0: 5th Place Winner**

- The tri-fold and presentation are incomplete.
- The business letter is not written.
- The reader will be unable to understand what the authors are trying to convey.
- A clear understanding of the relationships between fractions, decimals, and percents is not evident throughout all material.
- The group is not working together.

## WRITING PROMPT

You have designed a tri-fold to be sent to the State Department of Education. Now write a business letter to the State Department explaining why your tri-fold design should be chosen.

Before you begin to write, think about why your tri-fold should be chosen as the winner of the contest. Think about why you want to help adults. Think about how your tri-fold will help adults learn about fractions, decimals, and percents. Think about why new and exciting ways are needed to teach fractions, decimals, and percents.

Now write a business letter to the State Department of Education explaining why your tri-fold design should be chosen.

WEB FOR WRITING PROMPT

Think about\_\_\_\_\_

Think about\_\_\_\_\_

Think about\_\_\_\_\_

Think about\_\_\_\_\_

## TEACHER RESOURCE WEB

Think about why your tri-fold should be chosen as the winner.

Think about why you want to help adults.

Think about how your tri-fold will help adults learn about fractions, decimals, and percents.

Think about why your new and exciting techniques are needed to teach fractions, decimals, and percents.